## In the Claims:

Please amend the claims as follows:

1. (currently amended) A method for conversion of waveguide modes from a mode of type  $TM_{01}$  to mode of type  $TE_{11}$  for transmission of power within the <u>a</u> microwave range, wherein the method comprising:

dividing an incoming power of mode type  $TM_{01}$  is divided between two or more waveguides with cross-sections essentially in the <u>a</u> shape of circle sectors, wherein

<u>phase-shifting</u> the divided power is phase-shifted by the waveguides in a subsequent phase-shift section by means of with waveguides with having cross-sections essentially in the shape of circle sectors being designed with having different radii, after which and

changing the waveguides are changed into a common essentially circular waveguide that emits an outgoing power of mode type  $TE_{11}$ .

- 2. (currently amended) The method according to claim 1, wherein the conversion of the waveguide mode from mode type  $TM_{01}$  to mode type  $TE_{11}$  is caused, in an intermediate stage comprising four separate waveguides, to assume a field configuration for the basic modes of the respective waveguides that constitutes one quarter of a so-called  $TE_{21}$  mode in a corresponding circular waveguide.
- 3. (currently amended) A mode converting arrangement for conversion of waveguide modes from a mode of type  $TM_{01}$  to mode of type  $TE_{11}$  for transmission of power within the <u>a</u>

microwave range, comprising

an outgoing waveguide for outputting power of the mode type TE<sub>11</sub> and a waveguidemode-converting section arranged between the incoming and outgoing waveguides, wherein the waveguide-mode-converting section comprises at least one input section for dividing the received power into two or more components and a phase-shift section at the <u>an</u> output side of the input section with an allocated waveguide for each power component, with wherein the waveguides being designed with comprise cross-sections that are essentially in the a shape of circle sectors with different radii emanating from a common center and such that

an incoming waveguide for reception of power of the type  $TM_{01}$ ,

4. (currently amended) The mode-converting arrangement according to claim 3, wherein the phase-shift section is dimensioned to have has a length in the <u>a</u> transmission direction of at least  $\lambda_0/4$  and, for example, of the order of  $2\lambda_0$ , where  $\lambda_0$  denotes the <u>a</u> free-space wavelength of the a center frequency in the <u>a</u> band that is transmitted by the arrangement.

the cross-sections in the shape of circle sectors together essentially cover 360 degrees.

5. (currently amended) The mode-converting arrangement according to claim 3, wherein further comprising:

a mode-mixer section is included in connection with operatively connected to the outgoing waveguide, which the mode-mixer section comprises comprising a change from a plurality of waveguides with cross-sections in the shape of circle sectors to one waveguide with an essentially circular cross-section.

- 6. (currently amended) The mode-converting arrangement according to claim 5, wherein the change in the mode-mixer section can be designed to be is abrupt.
- 7. (currently amended) The mode-converting arrangement according to claim 5, wherein the change in the mode-mixer section is designed to be gradual, by the change having an extent in the  $\underline{a}$  transmission direction that corresponds to at least  $\lambda_0/4$ , where  $\lambda_0$  denotes the  $\underline{a}$  free-space wavelength for the  $\underline{a}$  center frequency in the  $\underline{a}$  band that is transmitted by the arrangement.
- 8. (currently amended) The mode-converting arrangement according to claim 5, wherein the <u>an</u> output of the mode-mixer section forms the outgoing waveguide of the arrangement.
- 9. (currently amended) The mode-converting arrangement according to claim 3, wherein further comprising:

a balance section is included, connected to the an output side of the phase-shift section and comprising waveguides with cross-sections that are essentially in the a shape of circle sectors with the same radii, in order to balance the field configurations of the waves that leave the different waveguides of the phase-shift section.

10. (currently amended) The mode-converting arrangement according to claim 3, wherein <u>further comprising:</u>

an intermediate section is arranged between the input section and the phase-shift section, which intermediate section comprises a plurality of waveguides with cross-sections in the a shape of circle sectors and essentially identical radii.

- 11. (currently amended) The mode-converting arrangement according to claim 3, wherein the input section is designed configured to divide the received power into two components.
- 12. (currently amended) The mode-converting arrangement according to claim 3, wherein the input section is designed configured to divide the received power into four components.
- 13. (currently amended) The mode-converting arrangement according to claim 3, wherein the input section comprises thin ridges for dividing the received power, which wherein the ridges increase in size in the a transmission direction from the a periphery of the input section inwards towards the a middle of the input section so that they meet at the output side of the input section.
- 14. (currently amended) The mode-converting arrangement according to claim 13, wherein the ridges are designed to increase in size continuously in the <u>transmission</u> direction.
- 15. (currently amended) The mode-converting arrangement according to claim 13, wherein the ridges are designed to increase in size in steps in the <u>transmission</u> direction.
- 16. (previously amended) An antenna arrangement comprising a mode-converting arrangement according to claim 3.

17. (new) The mode-converting arrangement according to claim 4, wherein the phase-shift section has a length in the transmission direction of  $2\lambda_0$ .